

REEL BLUR FOR GAMING MACHINES HAVING SIMULATED ROTATING REELS

TECHNICAL FIELD

[0001] The present invention relates generally to wager based gaming machines, and more specifically to the presentation of simulated rotating reels on processor-based gaming machines.

BACKGROUND

[0002] A “mechanical reel” type gaming machine generally refers to a slot machine having traditional physical rotating reels with their associated latches and mechanical parts. A mechanical reel usually has a fixed number of reel symbols disposed about a reel strip attached about the circumference of a wheel. A motor, spring, or other mechanical system physically spins the wheel until it stops at a particular rotational position or “reel stop” and a particular symbol rests in view of a player to indicate an outcome for that reel for a given reel game. Accordingly, most reel symbols are associated with a corresponding reel stop on their respective gaming reels. In many older machines, the reels and symbols were spun by potential energy first stored in a spring-loaded mechanism wound and then actuated by the pull of a traditional pull-arm handle. Each reel was stopped at a random position by a mechanical device. The slot machine sensed an outcome, usually along a central payline, by sensing the physical position of each reel.

[0003] Although popular throughout recent history, these mechanically driven reel slot machines are being steadily replaced by electronic gaming machines, some of which are specifically adapted to simulate such reel based games on a video display, such as a CRT, LCD flat panel display or the like. Processor-based gaming machines are becoming the norm. One reason for their increased popularity is the nearly endless variety of games that can be implemented using processor-based technology. The processor-based gaming machines permit the operation of more complex games, advance player tracking, improve security, permit wireless communications, and add a host of digital features that are not be possible on mechanical-driven gaming machines.

[0004] In a typical gaming machine, such as a processor-based gaming machine adapted to simulated multiple rotating reels, a game play is first initiated through a player wager of money or credit, whereupon the gaming machine determines a game outcome, presents the game outcome to the player and then potentially dispenses an award of some type, including a monetary award, depending upon the game outcome. Electronic and microprocessor based gaming machines can include a variety of hardware and software components to provide a wide variety of game types and game playing capabilities, with such hardware and software components being generally well known in the art. A typical electronic gaming machine can include hardware devices and peripheral such as bill validators, coin acceptors, card readers, keypads, buttons, levers, touch screens, coin hoppers, player tracking units and the like. In addition, each gaming machine can have various audio and visual display components that can include, for example, speakers, display panels, belly and top glasses, exterior cabinet artwork, lights, and top box dioramas, as well as any number of video displays of various types to show game play and other assorted information.

[0005] In many reel-based gaming machines, each reel within a plurality of reels or simulated reels typically includes a number of reel stops, at least some of which contain reel symbols. Such reel symbols can include various fruits, bells, bars, gems and/or numbers (such as a “lucky 7”), as well as a wide variety of other symbols, shapes or designs. A typical mechanical gaming machine might have, for example, 17 reel stops per reel, although this number can vary. Such a reel would then tend to have 17 equally sized sections within which reel symbols might be placed. Simulated or “virtual” gaming reels for processor-based gaming machines can also be designed so as to have a specific number of reel stops, as well as specific reel symbols and designated relative positions for each about the circumference of the virtual reel.

[0006] Advances in technology have resulted in processor-based gaming machines that are increasingly better at emulating actual mechanical reels from a fully mechanical or electromechanical reel-based gaming machine. Various efforts to simulate or realistically emulate mechanical reels on a video screen of a processor-based gaming machine abound. Some of such efforts can be found at, for example, U.S. Pat. No. 6,887,157, entitled “Virtual Camera and 3-D Gaming Environments in a Gaming Machine,” as well as at Japanese Patent Publication No. 2006346226A2, entitled “Game Device and Game Program.” Another reference that involves rotating reel games having processors is U.S. Patent Publication No. 2005/0285337, entitled “Dynamic Generation of a Profile for Spinning Reel Gaming Machines,” and there are numerous other known instances of machines and systems involving rotating reel games that are controlled at least in part by a microprocessor.

[0007] One issue that is common to providing simulated or “virtual” rotating gaming reels on a video display is the display of a realistic emulation of such reels while they are rotating. As is well known, true physical mechanical (i.e., analog) reels are typically spun during game play at such a rapid speed so as to blur all reel symbols together into one vague and largely unrecognizable blended streak for each reel. Although the naked eye might be able to detect when a particular already known reel symbol whizzes by, there are so many reel symbols traveling at such a high rate of speed for each reel that it is almost impossible for a human eye to isolate and comprehend a clear picture of any given reel symbol as it is moving during a typical game play reel spin. As such, the accurate simulation of rapidly moving physical reels has not been one of the most urgent concerns in many video simulations of reel based games to date.

[0008] Many prior efforts to simulate moving mechanical reels on a video screen presentation generally fall into one of two categories. The first category includes the use of a preset or “canned” video representation that is played whenever reels are “set in motion” via a player input, such as a start game button selection. In such instances, visual simulations of static reels at rest are replaced by a video clip that is intended to represent those same reels as they might appear to be rapidly spinning. This spinning reel video clip “simulation” is then ended when the new positions of the reels as a result of the game play is determined and the reels are shown in static form again, only in the new position(s) due to the game outcome. One of the problems with the use of such a “canned” video clip is that a clip or movie representation of simulated rotating reels tends to be the same clip every time, regardless of the actual starting and ending static positions of the reel before and after game play. Such a repeat and iden-